

PLAY

[Archived] Why Play = Learning

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Our children from their earliest years must take part in all the more lawful forms of play, for if they are not surrounded with such an atmosphere they can never grow up to be well conducted and virtuous citizens.

--Plato, *The Republic*¹

Introduction

The study of play has a long history. From Plato to Kant, from Froebel to Piaget, philosophers, historians, biologists, psychologists, and educators have studied this ubiquitous behavior to understand how and why we play. Even animals play. This fact alone leads researchers like Robert Fagan,² a leader in the study of animal play, to speculate that play must have some adaptive value given the sheer perilousness and energy cost to growing individuals. Researchers suggest that play is a central ingredient in learning, allowing children to imitate adult behaviors, practice motor skills, process emotional events, and learn much about their world. One thing play is *not*, is frivolous. Recent research confirms what Piaget³ always knew, that “play is the work of childhood.” Both free play and guided play are essential for the development of academic skills.^{4,5}

Subject

Despite the many treatises on play, scholars still find the term elusive. Like Wittgenstein's definition of *game*, the word *play* conjures up multiple definitions. Researchers generally discuss four types of play although in practice these often merge: (a) *Object play*, the ways in which children explore objects, learn about their properties, and morph them to new functions; (b) *pretend play* (either alone or with others), variously referred to as make-believe, fantasy, symbolic play, socio-dramatic play, or dramatic play, where children experiment with different social roles; (c) *physical or rough-and-tumble play*, which includes everything from a 6-month-old's game of peek-a-boo to free play during recess;⁶ and (d) *guided play*⁷ where children actively engage in pleasurable and seemingly spontaneous activities under the subtle direction of adults.

Whether play is with objects, involves fantasy and make believe, or centers on physical activity, researchers generally agree that from the child's point of view, eight features characterize ordinary play. Play is (a) pleasurable and enjoyable, (b) has no extrinsic goals, (c) is spontaneous, (d) involves active engagement, (e) is generally engrossing, (f) often has a private reality, (g) is nonliteral, and (h) can contain a certain element of make-believe.^{8,5,9} Even these criteria for judging play have some fuzzy boundaries.

Key Research Questions

A looming question is whether free play and guided play promote learning or whether they are simply a matter of releasing pent-up energy for young children. And, if play is related to learning, is one form of play more advantageous than another? These issues have dominated the research landscape in the past decade.

Research Context

The findings suggest that both free play and guided play are indeed linked to social and academic development. For example, Pellegrini¹⁰ finds that elementary-aged children who enjoy free play during recess return to the classroom more attentive to their work. These children, especially boys, do better in reading and mathematics than do children who did not have recess. Physical play has also been associated with areas of brain development (the frontal lobes) that are responsible for behavioral and cognitive control.¹ Indeed, a recent study used guided play throughout a school day to help preschoolers learn how to hold back impulsive behaviors and responses. The so-called *executive function* skills (attention, problem solving, and inhibition)

nurtured in the guided play conditions were related to improvements in mathematics and reading.¹¹

Recent Research on Academic Enhancement Through Play

Academically, then, play is related to reading and math as well as to the important learning processes that feed these competencies. More specifically, there are direct studies connecting play to literacy and language, and to mathematics. By way of example, 4-year-olds' play—in the form of rhyming games, making shopping lists, and “reading” story books to stuffed animals—predicts both language and reading readiness.¹² Research suggests that children demonstrate their most advanced language skills during play, and that these language skills are strongly related to emergent literacy.^{13,14} Finally, a review of 12 studies on literacy and play allowed Roskos and Christie¹⁵ to conclude that “play provides settings that promote literacy activity, skills, and strategies . . . and can provide opportunities to teach and learn literacy.”

Play and playful learning also supports the burgeoning mathematician. A naturalistic experiment by Seo and Ginsburg¹⁶ found that 4- and 5-year-old children build foundational mathematical concepts during free play. Regardless of children's social class, three categories of mathematical activity were widely prevalent: *pattern and shape* play (exploration of patterns and spatial forms), *magnitude* play (statement of magnitude or comparison of two or more items to evaluate relative magnitude) and *enumeration* play (numerical judgment or quantification). Children's free play contains the roots of mathematical learning 46% of the time. A recent study by Ramani and Siegler¹⁷ demonstrated that guided play in the form of playing a board game like Chutes and Ladders also fostered diverse mathematical tasks among lower income preschoolers. Preschoolers who played the game four times for 15- to 20-minute sessions within a 2-week period were better at numerical magnitude (which is bigger), number line estimation, counting, and numeral identification. Finally, Gelman¹⁸ found that even children as young as 2.5 and 3 years of age can demonstrate an understanding of the *cardinal counting principle*--that the last number counted in a set is the amount the set contains. But this skill is only manifest when children are engaged in a playful task.

Recent Research on Social Enhancement Through Play

Free play and guided play are also important for fostering social competence and confidence as well as for self-regulation, or children's ability to manage their own behavior and emotions. In free play children learn how to negotiate with others, to take turns, and to manage themselves and

others.^{19, 20, 21, 22, 23, 24, 25, 26, 27} Play is essential for learning how to make friends and how to get along.

Barnett and Storm²⁸ also find that play serves as a means for coping with distress. Indeed, Haight, Black, Jacobsen, and Sheridan²⁹ demonstrated that children who have been traumatized can use pretend play with their mothers to work through their problems. Taken together, social competencies such as friendship and coping serve as building blocks for school readiness and academic learning. Raver²³ concluded that “from the last two decades of research, it is unequivocally clear that children’s emotional and behavioral adjustment is important for their chances of early school success.” It is through play that children learn to subordinate desires to social rules, cooperate with others willingly, and engage in socially appropriate behavior—behaviors vital to adjusting well to the demands of school.

Conclusions

The data are clear. Play and guided play offer strong support for academic and social learning. In fact, comparisons of preschools that use playful, child-centered approaches versus less playful, more teacher-directed approaches reveal that children in the child-centered approaches do better in tests of reading, language, writing, and mathematics.³⁰ More engaging and interesting environments for children foster better learning well into elementary school.^{31,30}

Given the findings linking play and learning, it is perhaps shocking that play has been devalued in our culture. Play has become a 4-letter word that often represents the opposite of productive work. A recent report from Elkind³² suggests that in the last few years, 30,000 schools have dropped recess to make more room for academic learning. From 1997 to 2003, children’s time spent in outdoor play fell 50%. In the last 20 years, children have lost over 8 hours of discretionary playtime per week. Why? Because many do not realize that *play and learning are inextricably intertwined*. When children play they are learning. Children who engage in play and playful learning do better in academic subjects than do their peers who play less. The work cementing this relationship, however, is just beginning to emerge and, at this point, relationships between play and learning are largely based on correlational evidence. In the next decade, we must do more to compare the relationship of play to the learning of academic and social outcomes in controlled and empirical ways.

Implications

Play is, thus, central for school readiness and school performance. It might also play an important role in preparing children for the global world beyond the classroom. Business leaders suggest that in the knowledge age, success will depend on children having a toolkit of skills that include *collaboration* (teamwork, social competence), *content* (e.g., reading, math, science, history), *communication* (oral and written), *creative innovation*, and *confidence* (taking risks and learning from failure). Each of these “Five Cs” is nurtured in playful learning.

In sum: Play = Learning. As children move from the sandbox to the boardroom, play should be the cornerstone of their education. The research is clear: Playful pedagogy supports social-emotional and academic strengths while instilling a love of learning.

References

1. Panksepp J, Burgdorf J, Turner C, Gordon N. Modeling ADHD-type arousal with unilateral frontal cortex damage in rats and beneficial effects of play therapy. *Brain and Cognition* 2003;52(1):97-105.
2. Angier N. The purpose of playful frolics: Training for adulthood. *New York Times* October 20, 1992.
3. Piaget, J. *Play, Dreams, and Imitation in Childhood*. Gattegno C, Hodgson FN, trans. New York, NY: W. W. Norton & compagny; 1962.
4. Singer DG, Golinkoff RM, Hirsh-Pasek K, eds. *Play = Learning: How Play Motivates and Enhances Children's Cognitive and Social-Emotional Growth* New York, NY: Oxford University Press; 2006
5. Hirsh-Pasek K, Golinkoff RM, Ever DE. *Einstein never used flashcards: How our children really learn and why they need to play more and memorize less*. Emmaus, PA: Rodale Press; 2003.
6. Pellegrini AD, Holmes RM. The role of recess in primary school. In: Singer DG, Golinkoff RM, Hirsh-Pasek K, eds. *Play = Learning: How Play Motivates and Enhances Children's Cognitive and Social-Emotional Growth* New York, NY: Oxford University Press; 2006:36-53.
7. Hirsh-Pasek K, Golinkoff RM, Berk LE, Singer DG. *A Mandate for Playful Learning in Preschool: Presenting the Evidence*. New York, NY: Oxford University Press; 2008.
8. Garvey C. *Play*. Cambridge, MA: Harvard University Press; 1977.
9. Christie J, Johnsen E. The role of play in social-intellectual development. *Review of Educational Research* 1983;53(1):93-115.
10. Pellegrini AD. *Recess: Its Role in Development in Education*. Mahwah, NJ: Lawrence Erlbaum Associates; 2005.
11. Diamond A, Barnett WS, Thomas J, Munro S. Preschool program improves cognitive control. *Science* 2007;318(5855):1387-1388.
12. Bergen D, Mauer D. Symbolic play, phonological awareness, and literacy skills at three age levels. In: Roskos KA, Christie JF, eds. *Play and Literacy in Early Childhood: Research from Multiple Perspectives*. New York, NY: L. Erlbaum; 2000: 45-62.
13. Christie JF, Enz B. The effects of literacy play interventions on preschoolers' play patterns and literacy development. *Early Education and Development* 1992;3(3): 205-220.
14. Christie J, Roskos K. Standards, science and the role of play in early literacy education. In: Singer DG, Golinkoff RM, Hirsh-Pasek K, eds. *Play=Learning: How Play Motivates and Enhances Children's Cognitive and Social-Emotional Growth*. New York, NY: Oxford University Press. 2006:chap 4.

15. Roskos K, Christie J. Examining the play-literacy interface: A critical review and future directions. In: Zigler EF, Singer DG, Bishop-Josef SJ, eds. *Children's play: Roots of reading*. 1st ed. Washington D.C.; Zero to Three Press; 2004:116.
16. Seo KH., Ginsburg HP. What is developmentally appropriate in early childhood mathematics education? Lessons from new research. In: Clements DH, Sarama J, DiBiase AM, eds. *Engaging Young Children in Mathematics: Standards for Early Childhood Mathematics Education*. Mahwah, NJ: Lawrence Erlbaum Associates, 2003:91-104.
17. Ramani GB, Siegler RS. Promoting broad and stable improvements in low-income children's numerical knowledge through playing number boardgames. *Child Development* 2008;79(2):375-394.
18. Gelman R. Young natural-number arithmeticians. *Current Directions in Psychological Science* 2006;15(4):193-197.
19. Connolly JA, Doyle AB. Relations of social fantasy play to social competence in preschoolers. *Developmental Psychology* 1984;20(5):797-806.
20. Howes C, Matheson CC. Sequences in the development of competent play with peers: Social and social pretend play. *Developmental Psychology* 1992;28(5): 961-974.
21. Howes C. The Earliest Friendships. In: Bukowski WM, Newcomb AF, Hartup WW, eds. *The Company They Keep: Friendships in Childhood and Adolescence*. Cambridge, England: Cambridge University Press; 1998:66-86.
22. Hughes C, Dunn J. Understanding mind and emotion: Longitudinal associations with mental-state talk between young friends. *Developmental Psychology* 1998; 34(5):1026-1037.
23. Raver CC. Emotions matter: Making the case for the role of young children's emotional development for early school readiness. *SRCD Social Policy Report* 2002; XVI(3):3-18.
24. Singer DG, Singer JL. *Imagination and Play in the Electronic Age*. Cambridge, MA; Harvard University Press; 2005.
25. Smith PK. Play and peer relations. In: Slater A, Bremner G, eds. *An Introduction to Developmental Psychology*. Malden, MA: Blackwell Publishing; 2003:311-333.
26. Bodrova E, Leong DJ. *Tools of the Mind: The Vygotskian Approach to Early Childhood Education*. Englewood Cliffs, NJ: Merrill;1996.
27. Krafft KC, Berk LE. Private speech in two preschools: Significance of open-ended activities and make-believe play for verbal self-regulation. *Early Childhood Research Quarterly* 1998;13(4):637-658.
28. Barnett LA, Storm B. Play, pleasure, and pain: The reduction of anxiety through play. *Leisure Sciences* 1981;4(2):161-175.
29. Haight W, Black J, Jacobsen T, Sheridan K. Pretend play and emotion learning in traumatized mothers and children. In: Singer D, Golinkoff RM, Hirsh-Pasek K, eds. *Play=Learning: How Play Motivates and Enhances Children's Cognitive and Social-Emotional Growth*. New York, NY: Oxford University Press; 2006:chap.11.
30. Lillard A, Else-Quest N. Evaluating Montessori education. *Science* 2006;313(5795):1893-1894.
31. Sternberg RJ, Grigorenko EL. *Teaching for Successful Intelligence: to Increase Student Learning and Achievement*. 2nd ed. Thousand Oaks, CA: Corwin Press; 2007.
32. Elkind D. Can we play? *Greater Good Magazine* 2008;IV(2):14-17.